LETTERS

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THE FOX KESTREL (*FALCO ALOPEX*) HOVERS

Although typically considered related and similar to other kestrels (*Falco* spp.), the little-known, Sahel-endemic Fox Kestrel (*Falco alopex*) seems to exhibit some unusual morphological traits and behaviors. Reports have been particularly contradictory concerning the hovering ability of this species. For example, "Is misnamed 'kestrel' as has few kestrel-like habits. Normally, in open country perches on trees, and catches prey by short swoop from perch to ground; does not hover. In general behaviour more a long-winged, long-tailed falcon than kestrel." (Brown et al. 1982, The birds of Africa, Vol. 1, Academic Press, London, U.K.), or ". . . long narrow pointed wings and, for falcon, exceptionally long graduated tail giving atypical kestrel shape, more like long-tailed hobby" and "Rarely, if ever, hovers" (Ferguson-Lees and Christie 2001, Raptors of the world, A&C Black, London, U.K.). Another description is "Long, broad wings and graduated tail suggest buoyant flight and good hovering ability" (del Hoyo, J., A. Elliott, and J. Sargatal [EDS.]. 1994, Handbook of the birds of the world. Vol. 2. Lynx Edicions, Barcelona, Spain). A buoyant, slow flight mode was previously hypothesized by Cade (1982, The falcons of the world, Cornell Univ. Press, Ithaca, NY, U.S.A.), who added that "certainly more observations are needed before one can be sure about all of its hunting and flying characteristics."

Hovering occurs in distantly-related raptors, including in some Falconidae and some Accipitridae, certainly as a result of convergent evolution. However, hovering has been used as a behavioral trait indicating phylogeny (Boyce and White 1987, Pages 1–21 *in* D.M. Bird and R. Bowman [EDS.], The ancestral kestrel, *J. Raptor Res.* Rep. No. 6). Specifically, hovering is thought to be a derived trait. Thus, Boyce and White (1987) suggested that the Fox Kestrel was a primitive kestrel based on the reported absence of hovering.

On 16–17 August 2001, during a visit to the Mandara Mountains, Cameroon, I observed a pair of these falcons hunting over pastureland near the village of Roumsiki (1100 masl). During my observations, performed in late afternoon and early morning, the sky was clear and the falcons' activity seemed stimulated by a light breeze on the grassy slopes. The kestrels were actively soaring and gliding. The latter flight behavior seemed much slower and steadier than that of a Eurasian Kestrel (*Falco tinnunculus*). The flight of the Fox Kestrels gave the appearance of miniature Lammergeiers (*Gypaetus barbatus*). After hanging in the wind at 5–10 m above the ground (stationing), the falcons were able to hold their position with minimal, compensative movements of the wings and tail. Occasionally, the falcons beat their wings obviously (hovering). Once prey was located, the kestrels descended at an angle, slowly and continuously (with no diving or descent hesitations). The birds did not stay on the ground, but the prey (probably orthopterans) was consumed in the air.

I videotaped flight sequences of Fox Kestrels for later comparison with Eurasian Kestrels under similar conditions as far as weather, terrain, and prey involved (orthopterans) are concerned. A 5-min hunting sequence of one Fox Kestrel gave the following results: 4 stationings in the air, 2 with and 2 without hovering; 6 hovering bouts, with a mean of 2.2 ± 1.2 (SE) wing beats/bout; and 4 descents to the ground. Filming of a Eurasian Kestrel in Italy during a 5-min period revealed the following results: 11 stationing bouts, 8 with and 3 without hovering; 15 hovering bouts, with a mean of 7.3 ± 9.3 (SE) wing beats/bout; and 2 descents to the ground. Analysis of direct flights revealed similar wing beat frequencies for both Fox and Eurasian kestrels (near 6/sec), and the positions of wings and tails during soaring and gliding were also similar.

Although Africa may well have been an important site for kestrel radiation, the suggestion that the Fox Kestrel might be the most primitive of the typical kestrels (Boyce and White 1987) seems unlikely. Provided that hovering has some phylogenetic value, finding it infrequent in a species may suggest either the incipient or the reduced trait. Coupling the variation of hovering among falcon species with that of unrelated traits may solve this problem of evolutionary direction as well as help clarify the relationships of falcons. In adulthood, the Fox Kestrel has an unusually pale eye similar to the Greater Kestrel (*Falco rupicoloides*), its probable closest relative (Olsen et al. 1989, *Emu* 89.193–203). From photographs (Kemp and Kemp 1998, Sasol birds of prey of Africa and its islands, New Holland, London, U.K.); it seems that the juvenile Fox Kestrel has paler eyes (different than in adults) than the juvenile Greater Kestrel. The latter has decidedly dark eyes like most falcons and all the Old World falconets (often considered primitive falcons) at any age. For this reason the Greater Kestrel, with more *tinnunculus*-like proportions and flight behavior (more frequent hovering), might be a transitional form from the Eurasian to the Fox Kestrel rather than the reverse. At first sight, the extremely developed wings and tail of the Fox Kestrel may suggest the Eleonora's Falcon

(Falco eleonorae), also a candidate for an ancestral falcon (Olsen et al. 1989). However, the wings and tail of the Fox Kestrel have a narrower base, as if resulting from a distal enlargement of gracile structures of *tinnunculus*-like ancestors. Thus, the Fox Kestrel may be less an atypical kestrel than usually assumed. Also, I suggest that the infrequent hovering of Fox Kestrels can be explained. This kestrel may have departed from more *tinnunculus*-like birds through specialization to inexpensive, slow flight for hunting small, scattered, and not very mobile prey in dry savannahs. The suggested resemblance, size apart, with the Lammergeier may represent convergent evolution toward the ability to remain on the wing for long periods in order to hunt broken terrain.

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PROBABLE BREEDING OF SHORT-EARED OWLS IN SOUTHERN WEST VIRGINIA

During spring and summer of 2001, we observed adult and juvenile Short-eared Owls (*Asio flammeus*) frequenting grassland habitats of three reclaimed mine sites in Logan, Fayette, Kanawha, and Boone counties in southern West Virginia. This species has been previously reported as an uncommon migrant or winter visitant in West Virginia (Hall 1983, West Virginia birds, Special Publication Carnegie Museum of Natural History No. 7, Pittsburgh, PA U.S.A); however, there are no breeding or nesting records in the state (Buckelew and Hall 1994, The West Virginia breeding bird atlas. Univ. of Pittsburgh Press, Pittsburgh, PA U.S.A., Holt and Leasure 1993, *in* A. Poole and F. Gill [EDS], The birds of North America No. 62, The Academy of Natural Sciences, Philadelphia, PA U.S.A.). Our sightings lend support to the idea that Short-eared Owls are opportunistic and will colonize areas when the conditions are suitable.

Eight different adult female and three different adult male Short-eared Owls were observed multiple times on or near reclaimed grassland areas. They were identified as different individuals based on their repeated occurrence in specific areas of each mine. Sex determination was based on observed plumage pattern differences (Sibley 2000, Alfred A. Knopf, Inc. New York, NY U.S.A.). Observation dates ranged from 14 March–13 July 2001, with sightings occurring between 0545 and 1130 H, and 1630 and 2000 H EST. The owls were observed in a suite of behavioral contexts. Most were observed flying low over grassland habitat actively foraging. One individual male was observed in an acrobatic aerial display with a male Northern Harrier (*Circus cyaneus*). A very vocal female was observed on the ground consuming an unidentified mammalian prey item. Several individuals were observed perched on large rocks

Two juvenile Short-eared Owls were observed flying low over grassland areas on two separate mine sites in Logan and Boone counties on 11 June 2001 and 19 June 2001, respectively. On each occasion, juveniles were closely accompanied by an adult female. In one case, the juvenile was following a female that was hunting and capturing prey. Juvenile plumage patterns were similar to the adults with more black on the facial disks and tawny feather tips. The time of year that the juveniles were present and the lack of suitable habitat elsewhere in this region, strongly suggests that these individuals fledged from nests on the mine sites. Typical breeding dates for this species range from mid-April to June in most years (Mikkola 1983, *Br. Birds* 65:453–460).

Short-eared Owls prefer to forage and nest in open habitats such as old fields, hay meadows, pastures, prairies, dunes, and marshes (Johnsgard 1988, Smithsonian Institution Press. Washington, DC U.S.A.). Mountaintop mining valley fill (MTMVF) practices in West Virginia convert large areas of mature hardwood forest to early successional habitats consisting of low- to medium-height grassland plant communities. The three reclaimed MTMVF mine sites on which owls occurred included expansive networks of contoured grassland habitat (ca. 1600–2000 ha at each site) that ranged in age from 5–19 yr old. Reclaimed sites are dominated by a mixture of grasses and forbs (native and non-native) with scattered shrub/seedlings of autumn olive (*Elaeagnus umbellata*), black locust (*Robinia pseudoacacia*), and European black alder (*Alnus glutinosa*). These areas support dense small mammal populations that include white-footed mice (*Peromyscus leucopus*), deer mice (*Peromyscus maniculatus*), southern bog lemmings (*Synaptomys cooperi*), and meadow voles (*Microtus pennsylvanicus*) (Chamblin 2002, M.S. thesis, West Virginia University). These species along with an abundant grassland bird assemblage dominated by Grasshopper Sparrows (*Ammodramus savannarum*), Eastern Meadowlarks (*Sturnella magna*), Horned Larks (*Eremophila alpestris*), and Killdeer (*Charadrius vociferus*) apparently provide an adequate prey base for Short-eared Owls on these sites.